

FIG.1

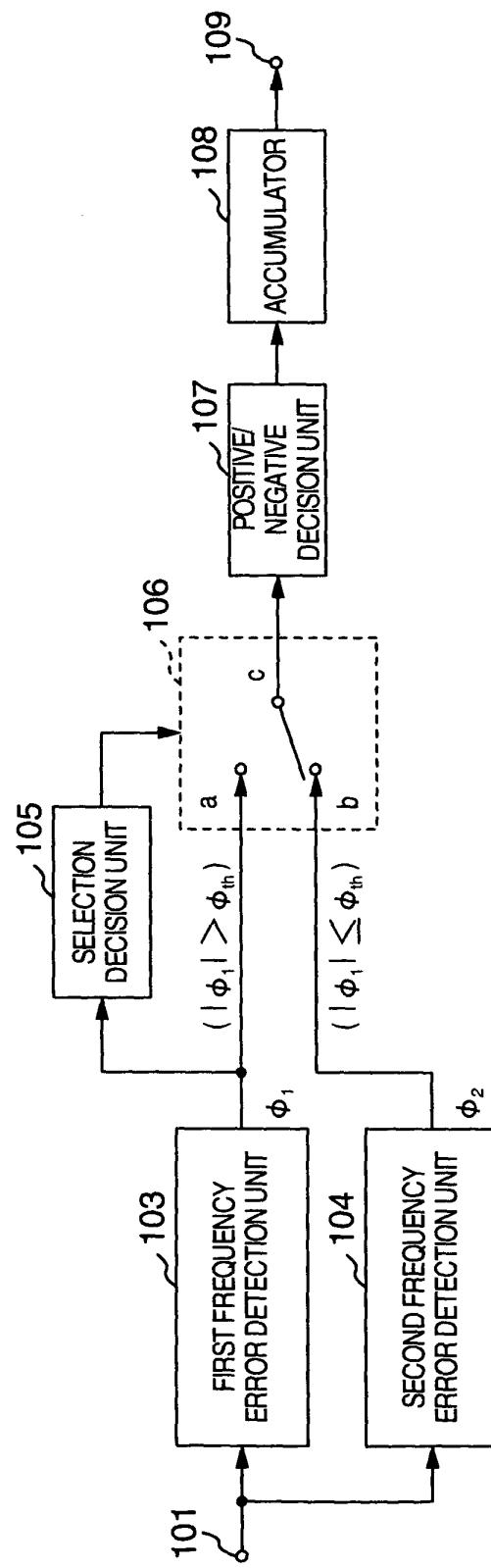


FIG.2

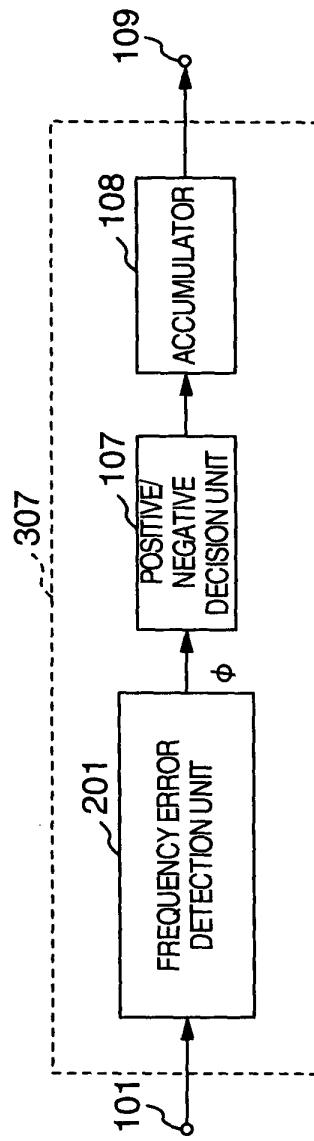


FIG.3

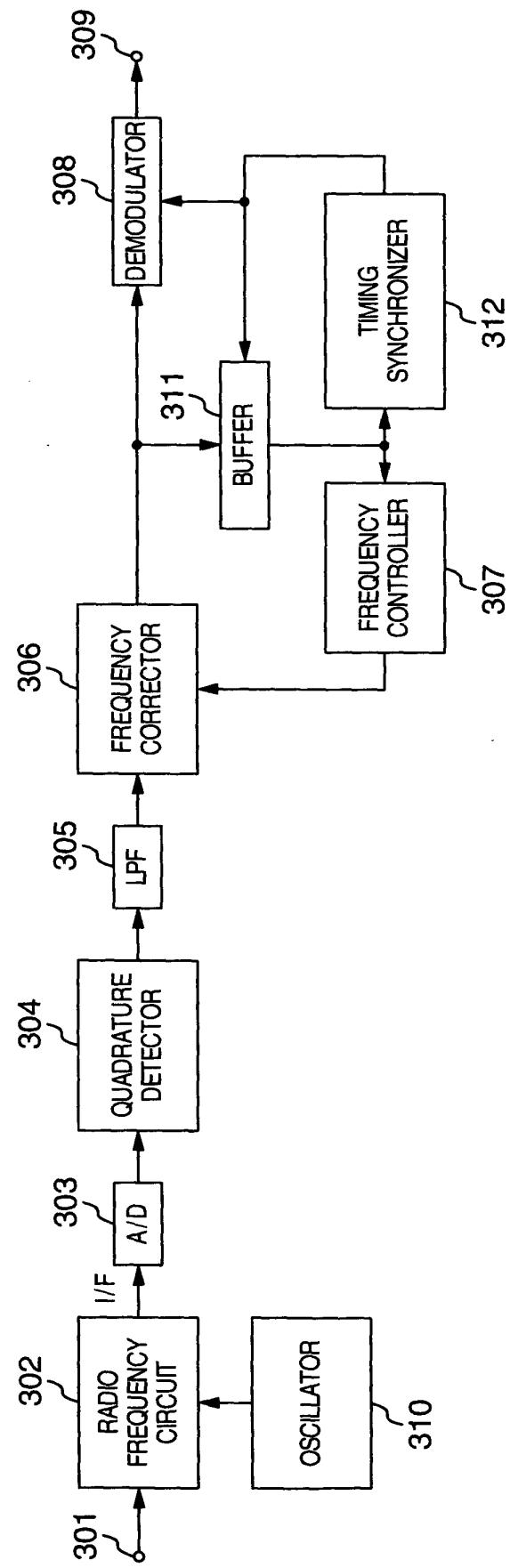


FIG.4

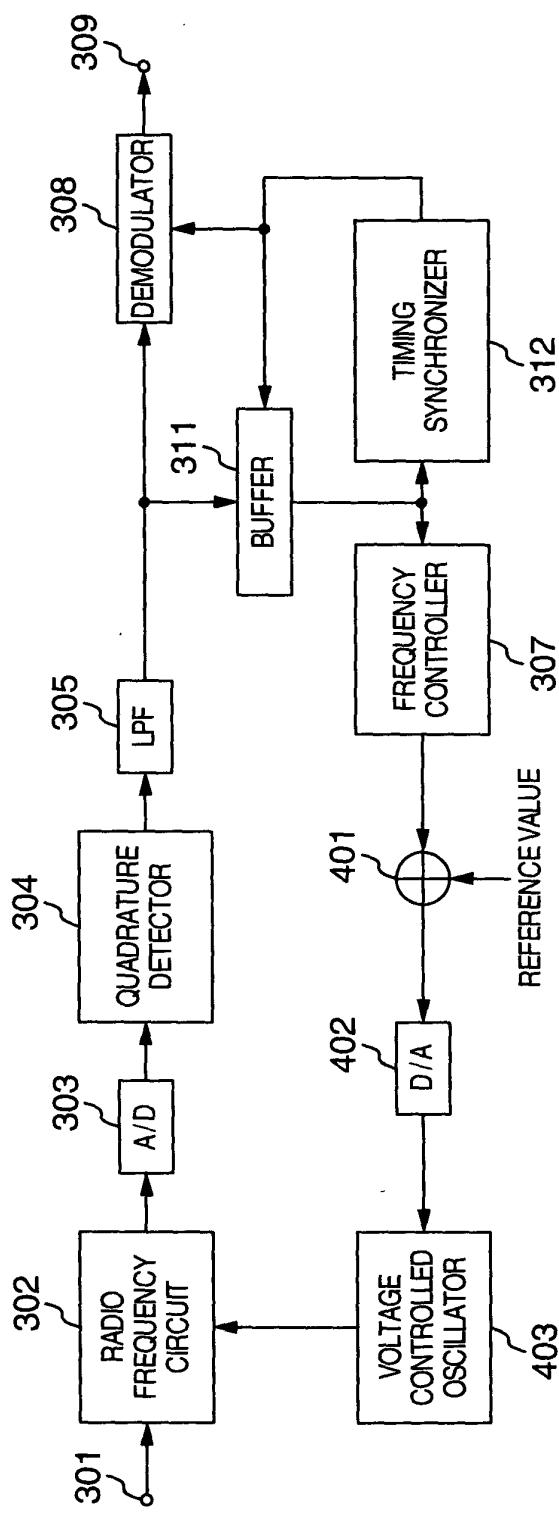
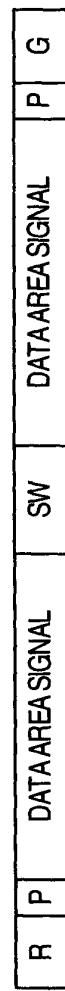
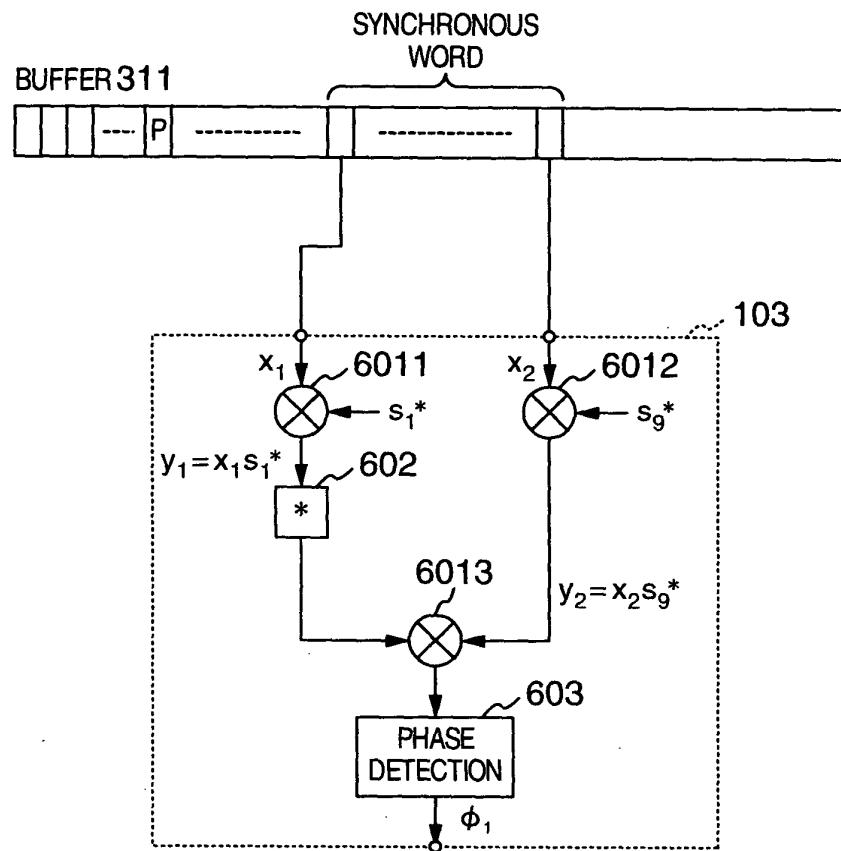


FIG.5



R:RAMP SECTION  
P:PILOT SYMBOL  
SW:SYNCHRONOUS WORD SYMBOL AREA  
G:GUARD TIME

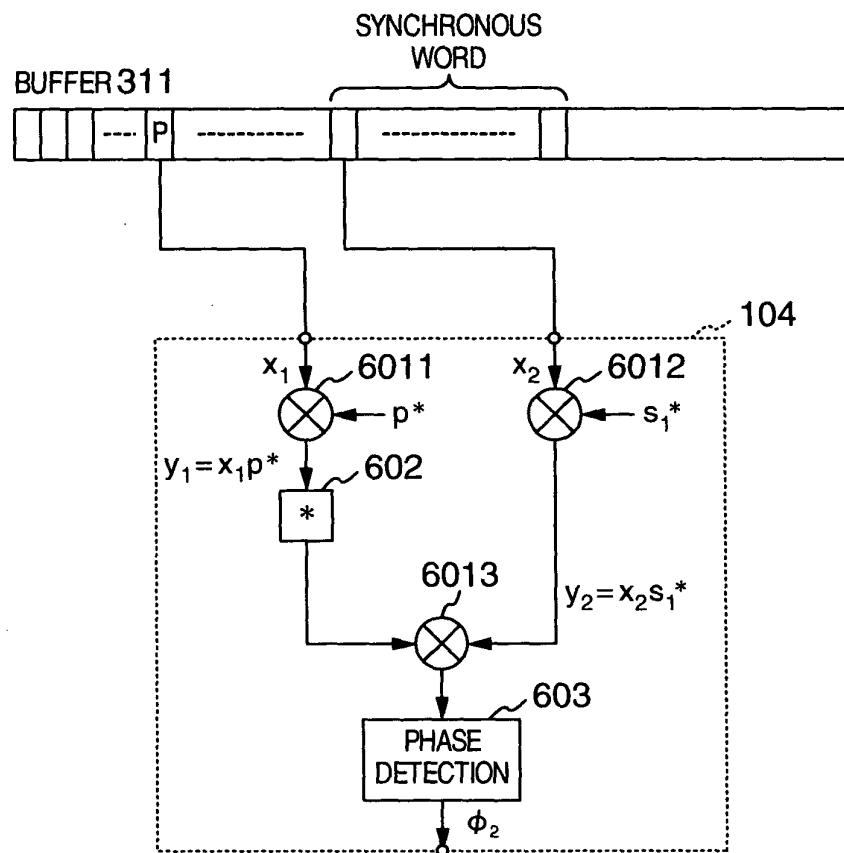
**FIG.6A**



$s_1$ : 1<sup>st</sup> SYMBOL OF SYNCHRONOUS WORD SYMBOL

$s_9$ : 9-th SYMBOL OF SYNCHRONOUS WORD SYMBOL

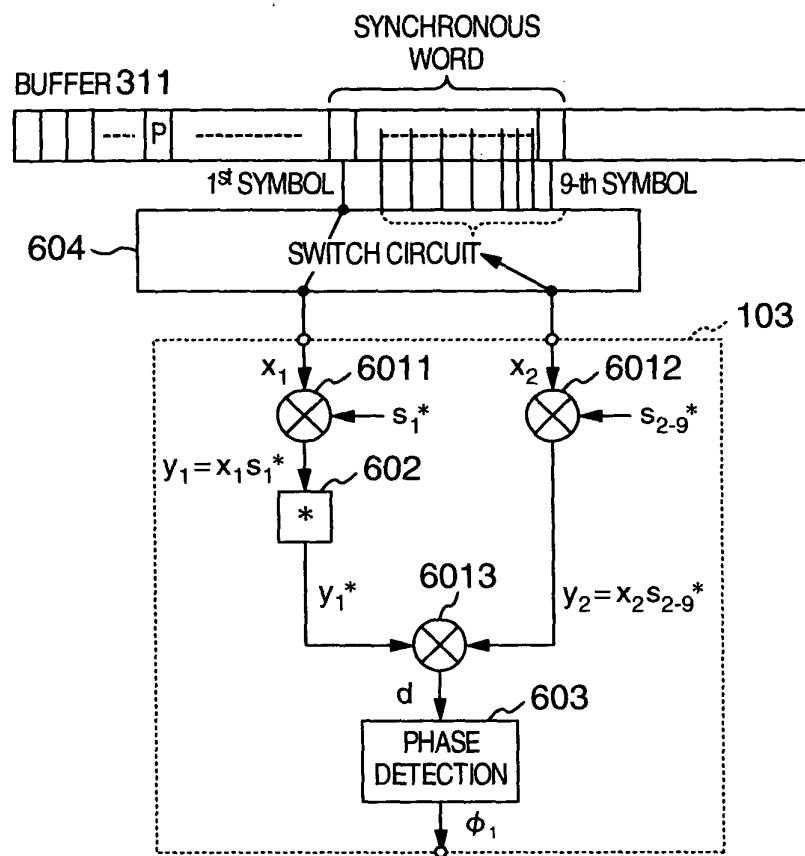
**FIG.6B**



p: PILOT SYMBOL

$s_1$ : 1<sup>st</sup> SYMBOL OF SYNCHRONOUS WORD SYMBOL

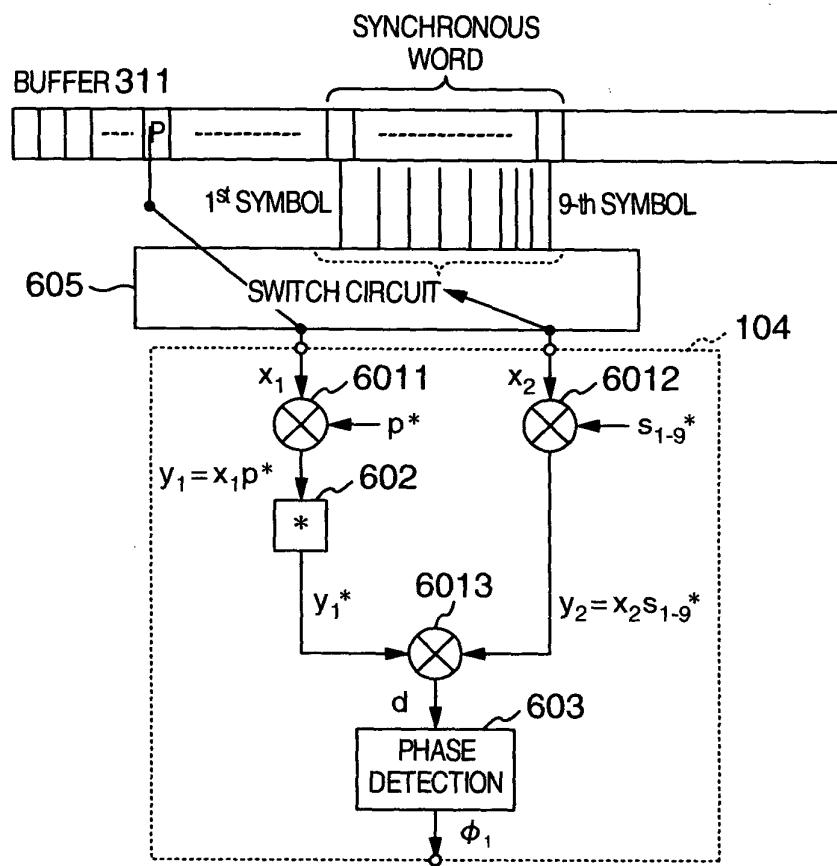
**FIG.6C**



$s_1$ : SYMBOL PATTERN OF SYNCHRONOUS WORD 1<sup>st</sup> SYMBOL

$s_{2-9}$ : SYMBOL PATTERN OF ONE OF SYNCHRONOUS WORD 2-nd TO 9-th SYMBOLS

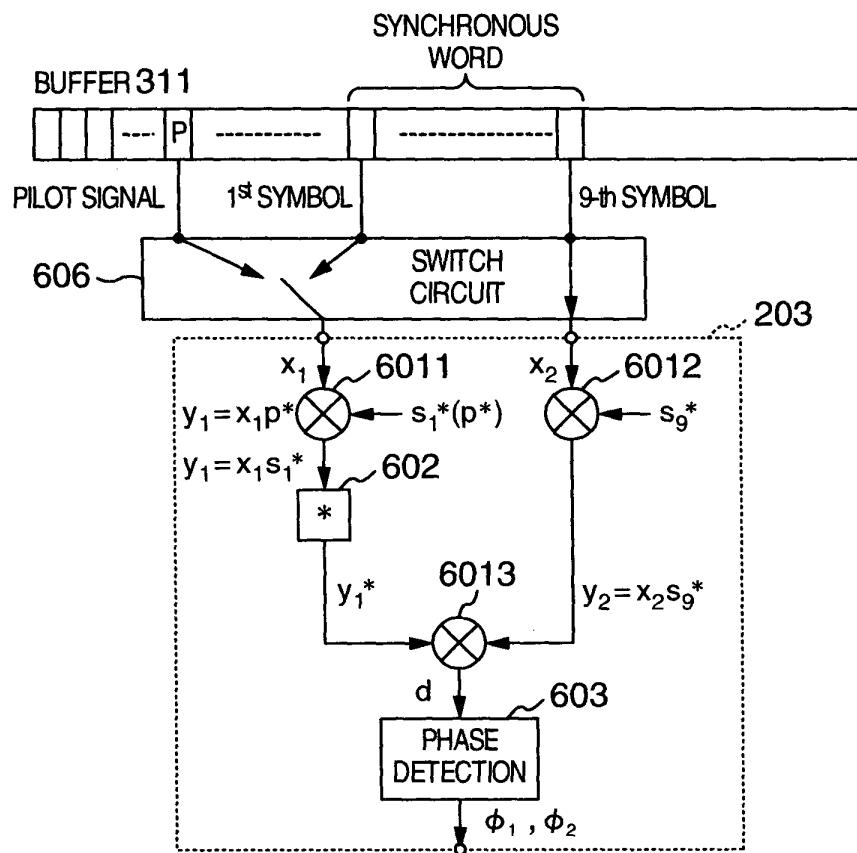
**FIG.6D**



**p:** SYMBOL PATTERN OF PILOT SYMBOL

**$s_{1-9}$ :** SYMBOL PATTERN OF ONE OF SYNCHRONOUS WORD 1<sup>st</sup> TO 9-th SYMBOLS

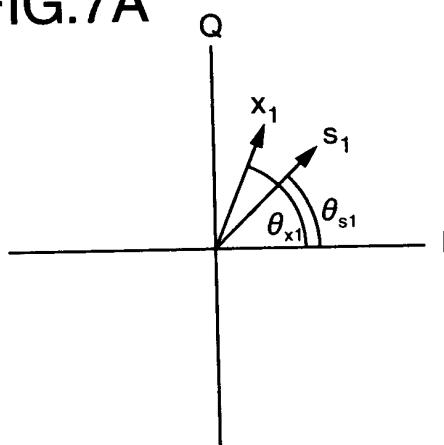
**FIG.6E**



$s_1(p)$ : PILOT SYMBOL OR SYMBOL PATTERN OF SYNCHRONOUS WORD 1<sup>st</sup> SYMBOL (SELECTION)

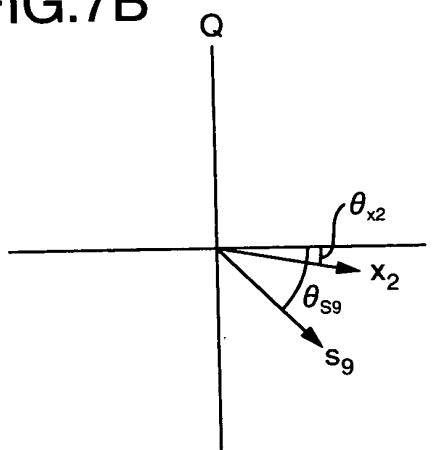
$s_9$ : SYMBOL PATTERN OF SYNCHRONOUS WORD 9-th SYMBOL

**FIG.7A**



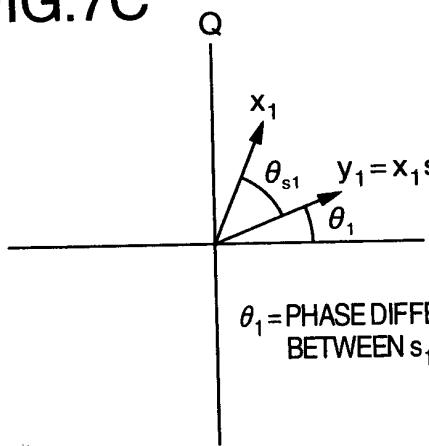
PHASE RELATION BETWEEN  $x_1$  AND  $s_1$

**FIG.7B**



PHASE RELATION BETWEEN  $x_2$  AND  $s_9$

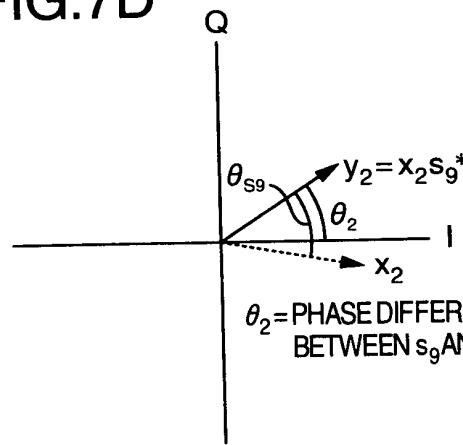
**FIG.7C**



$\theta_1$ =PHASE DIFFERENCE  
BETWEEN  $s_1$  AND  $x_1$

CALCULATION OF  $y_1$

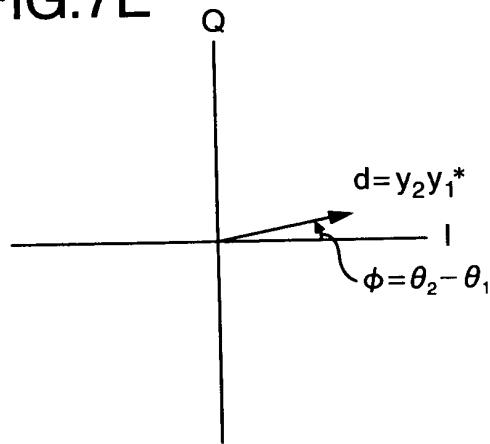
**FIG.7D**



$\theta_2$ =PHASE DIFFERENCE  
BETWEEN  $s_9$  AND  $x_2$

CALCULATION OF  $y_1$

**FIG.7E**



CALCULATION OF  $d$

**FIG.8**

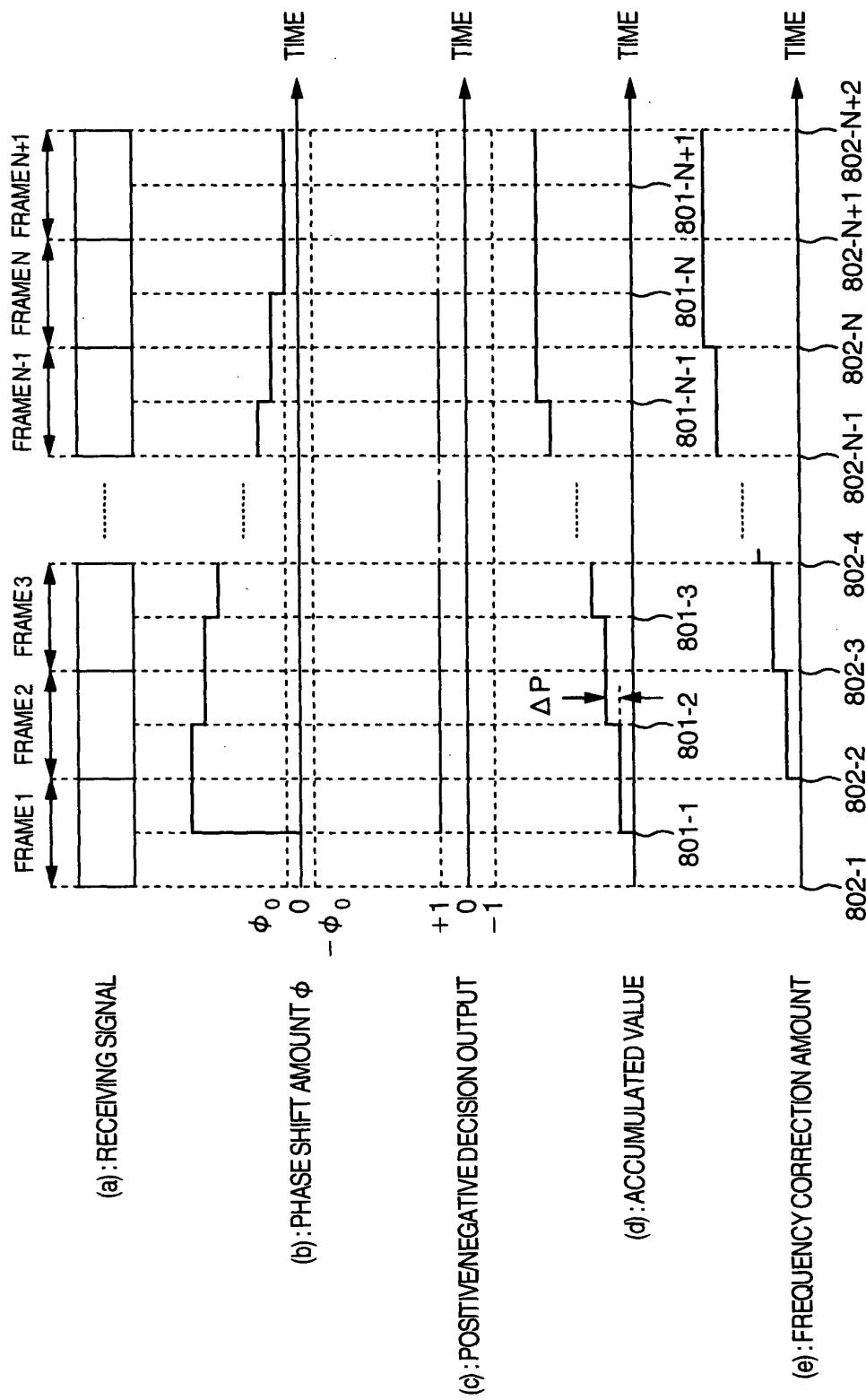
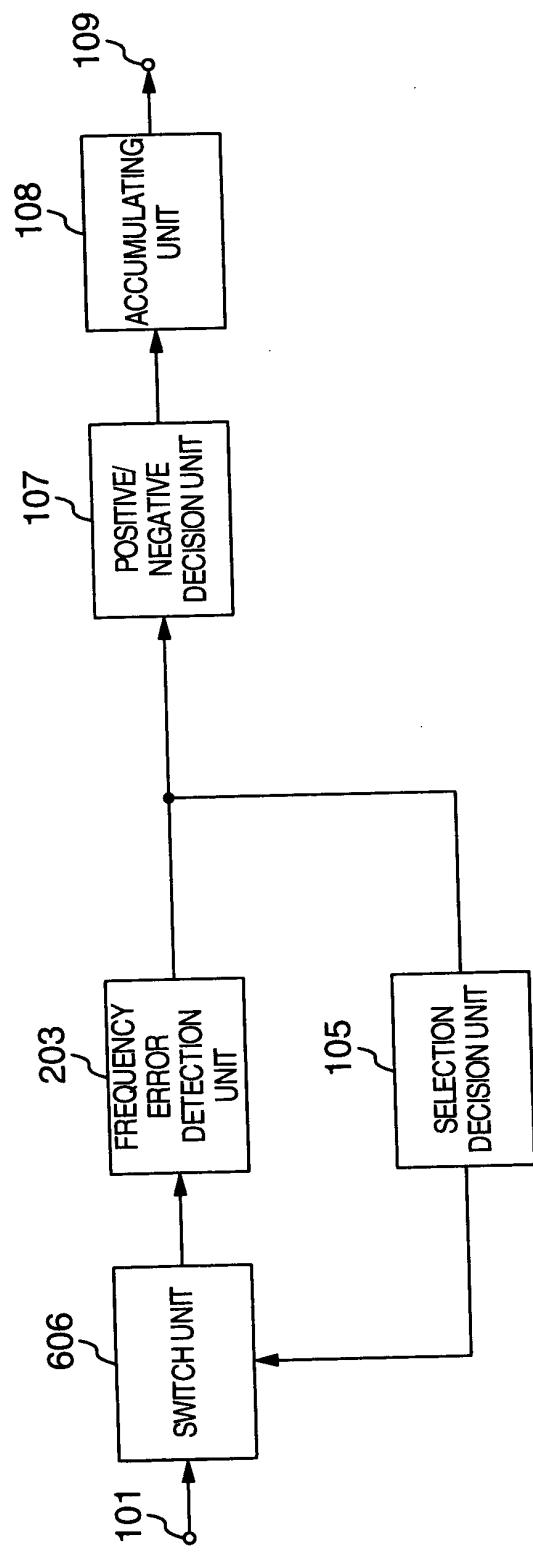
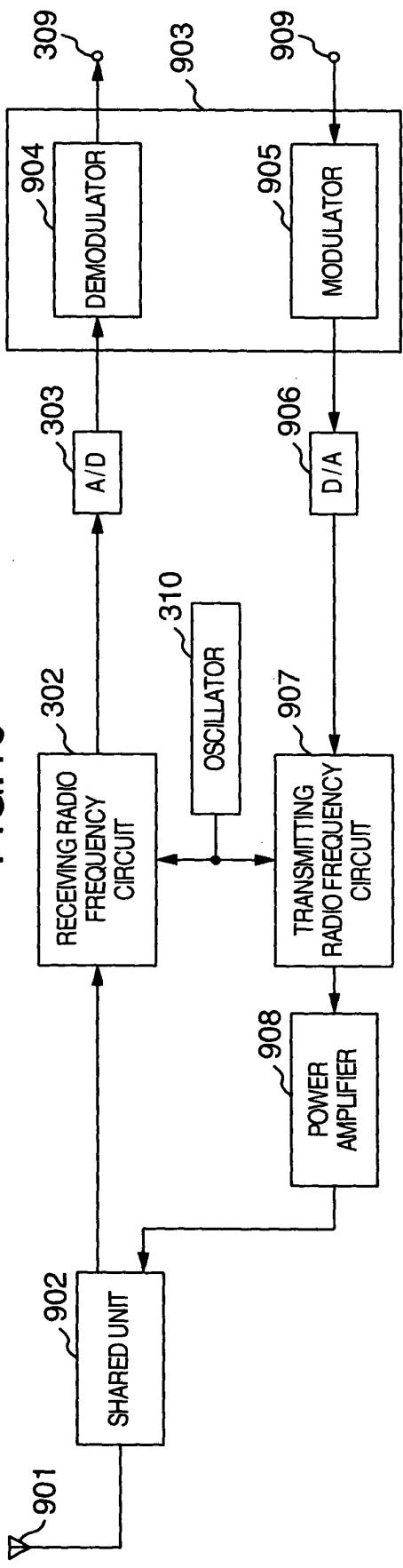


FIG.9



**FIG.10**



**FIG.11**

